

REMARKS

Entry of the foregoing and reconsideration of the application identified in caption, as amended, pursuant to and consistent with 37 C.F.R. §1.114 and in light of the remarks which follow, are respectfully requested.

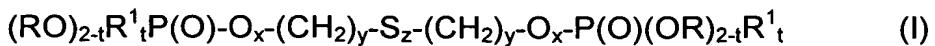
By the above amendments, the specification at page 3 has been amended to correct typographical errors in formula (I). Claims 1, 8 and 21 have been amended to correct typographical errors in the formulas recited in such claims. Support for the above amendments can be found in the instant specification, for example, at least in the abstract. Claim 18 has been amended to delete the phrase "a temperature of the order of 140°C". New dependent claims 22 and 23 have been added which recite a compound as claimed in claim 1, wherein t = 1 and t = 2, respectively. New dependent claim 24 has been added which recites that during the first stage, the trialkoxyphosphonate P(ORa)₃ (VI) is reacted with the dibromoalkane Br-(CH₂)_y-Br (VII) at a temperature of about 140°C. Support for this amendment can be found in the specification at least at page 4, lines 23-26. Entry of the foregoing amendments is proper at least because a Request for Continued Examination is being filed herewith. See 37 C.F.R. §1.114.

Applicant notes with appreciation the indication that claims 3, 6-8 and 15-21 would be allowable if rewritten in independent form including all of the features of the base claim and any intervening claims. See Official Action at page 3.

In the Official Action, claims 1, 2, 4, 5, 9-11, 13, and 14 stand rejected under 35 U.S.C. §102(b) as being anticipated by U.S. Patent No. 6,541,428 (Joye). Claims 1, 2, 4, 5 and 9-14 stand rejected under 35 U.S.C. §103(a) as being obvious over

Joye. Withdrawal of these rejections is respectfully requested for at least the following reasons.

Independent claim 1 recites a compound corresponding to the formula:



in which: R represents a hydrogen, an alkyl, an aryl, a trialkylsilyl, a trialkylamino or an alkali metal; R^1 represents an alkyl or an aryl; x is 0 or 1; y is an integer from 1 to 22; $z \geq 3$; t is 0 or 1.

Joye relates to alkoxylated sulphurized orthophosphate compositions comprising at least one compound of formula (I), $(R^1-O)_3-P=O$, or a salt of this compound. See Col. 1, lines 35-40. *Joye* discloses that at least one of the R^1 radicals represents the $R^1-(O-X)_n$ -radical, wherein n has a mean value of between 1 and 100. See Col. 1, lines 42-45. *Joye* further discloses that at least one of the R^1 radicals of a molecule of the compound of formula (I) is connected to another R^1 radical of another molecule of the compound of formula (I) via one or more mono- or polysulphide bridges using S-C bonds. See Col. 1, lines 57-61.

Joye does not disclose or suggest the compound corresponding to the formula (I), as recited in independent claim 1. Upon careful consideration of the teachings of *Joye* concerning the structure of its compound, it is apparent that such disclosed structure does not correspond to the claimed formula (I) compound.

In this regard, *Joye* discloses a compound of formula (I), $(R^1-O)_3-P=O$, or a salt of this compound. It is important to note that *Joye* specifies that at least one of the R^1 radicals represents the $R^1-(O-X)_n$ -radical, wherein n has a mean value of between 1 and 100. See Col. 1, lines 42-52. Incorporating this radical structure into

Joye's formula (I) results in the formula $[R^1-(O-X)_n-O]_b P(O)(OR^1)_{3-b}$, wherein b is 1, 2 or 3. Such resulting formula is hereinafter referred to as formula (Ia).

Joye further teaches that at least one of the R^1 radicals of a molecule of the compound of formula (I) is connected to another R^1 radical of another molecule of the compound of formula (I) via one or more mono- or polysulphide bridges using S-C bonds. See Col. 1, lines 57-61. Connecting more than two formula (I) compounds together would result in a compound which contains more than two phosphorus atoms; this would clearly be different from the claimed formula (I) compound, which contains two phosphorus atoms. Accordingly, the three possible structures resulting from the connection of two of the above formula (Ia) compounds taught by the Joye disclosure, are set forth in the following table:

Possible structures resulting from the connection of two Joye formula (Ia) compounds

Conditions	Resulting structure
Connection of two R^1 , each belonging to an $(O-R^1)$ radical of formula (Ia)	$[R^1-(O-X)_n-O]_{b'}(OR^1)_{2-b'}P(O)(OR^1)-S_z-$ $(R^1O)P(O)(OR^1)_{2-b'}[O-(X-O)_n-R^1]_{b'}$ $b' = 1$ or 2
Connection of one R^1 belonging to an (OR^1) radical of formula (Ia), with one R^1 belonging to an $[R^1-(O-X)_n-O]$ -radical of formula (Ia)	$[R^1-(O-X)_n-O]_{b'}(OR^1)_{2-b'}P(O)(OR^1)-S_z-$ $R^1(O-X)_nOP(O)(OR^1)_{2-b''}[O-(X-O)_n-R^1]_{b''}$ $b' = 1$ or 2 $b'' = 0, 1$ or 2
Connection of two R^1 , each belonging to an $[R^1-(O-X)_n-O]$ -radical of formula (Ia)	$[R^1-(O-X)_n-O]_{b''}(OR^1)_{2-b''}P(O)O(X-O)_nR^1-S_z-$ $R^1(O-X)_nOP(O)(OR^1)_{2-b''}[O-(X-O)_n-R^1]_{b''}$ $b'' = 0, 1$ or 2

Quite clearly, none of the above structures resulting from the connection of two R^1 groups of two formula (Ia) compounds of Joye, corresponds to the claimed formula (I) compound. For example, each of the first two conditions results in structures

containing an $[R^1-(O-X)_n-O]$ terminal group bonded to a phosphorus atom. By comparison, in the claimed formula (I) compound, each phosphorus atom is bonded to at least one (RO) group and optionally an R^1 group. Under the third condition set forth in the above table, the structure between the phosphorus atoms, i.e., $O(X-O)_nR^1-S_z-R^1(O-X)_nO$, is not the same as the structure of the claimed formula (I) compound that is in the corresponding location.

In the "Response to Arguments" section at page 2 of the Official Action, the Examiner has contended that "When 't' is zero applicants' Formula I is identical to Joye's formula (1)." In this regard, it is noted that when $t = 0$ in the claimed formula (I) compound, the resulting exemplary structure is $(RO)_2P(O)-O_x-(CH_2)_y-S_z-(CH_2)_y-O_x-P(O)(OR)_2$. Clearly, none of the above structures disclosed by Joye corresponds to the claimed formula (I) compound when $t = 0$.

"[R]ejections on obviousness grounds cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness." *KSR International Co. v. Teleflex Inc.*, 82 USPQ2d 1385, 1396 (2007), *citing In re Kahn*, 78 USPQ2d 1329, 1336 (Fed. Cir. 2006). "[I]n cases involving new chemical compounds, it remains necessary to identify some reason that would have led a chemist to modify a known compound in a particular manner to establish *prima facie* obviousness of a new claimed compound." *Takeda Chem. Indus., Ltd. v. Alphapharm Pty., Ltd.*, 492 F.3d 1350 (Fed. Cir. 2007). In the present case, no adequate rationale has been provided by the Patent Office which shows that it would have been obvious to modify the Joye formula (Ia) compounds to arrive at the claimed formula (I) compound.

Accordingly, for at least the above reasons, withdrawal of the above rejections is respectfully requested.

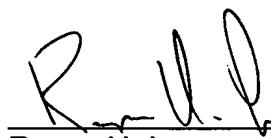
From the foregoing, further and favorable action in the form of a Notice of Allowance is believed to be next in order, and such action is earnestly solicited. If there are any questions concerning this paper or the application in general, the Examiner is invited to telephone the undersigned.

Respectfully submitted,

BUCHANAN INGERSOLL & ROONEY PC

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